compared with those with CS BSIs. This highlights the need for better and more preventive and therapeutic strategies aimed at combating GN CR.

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682. The Changing Epidemiology of Bacterial Meningitis During 2015–2017 in Turkey: A Hospital-Based Prospective Surveillance Study

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Background. The etiology of bacterial meningitis in Turkey has been changed after the implementation of conjugated vaccines against *Streptococcus pneumonia* and *Haemophilus influenzae* type b (Hib) in Turkish national immunization schedule.

Methods. This prospective study was conducted in 25 hospitals located seven regions of Turkey (representing 30% of Turkey population) and children aged between 1 month and 18 years with suspected meningitis and hospitalized were included. Cerebrospinal fluid samples were collected and bacterial identification was made according to the multiplex PCR assay results.

Results. During the study period, 927 children were hospitalized for suspected meningitis and Hib (*n*:1), *S. pneumonia* (*n*:17) and *Neisseria meningitidis* (*n*:59) were detected in 77 samples (Figure 1, Table 1). During 2015–2016, *N. meningitidis* serogroup W, B, A, Y, X frequencies were as 5 (13.9%), 16 (44.4%), 1 (2.8%), 1 (2.8%), 1 (2.8%), respectively. There were 12 nongroupable *N. meningitidis* samples and serogroup C was not detected. In 2017, of meningococcal meningitis serogroup B, W, A, Y and X were identified in two (8.7%), 15 (65.2%), two (8.7%), 1 (4.3%) and 1 (4.3%) cases, respectively (Figure 2). There were four deaths in this study period, all of them were caused by *N. meningitidis* serogroup B and three of them were under 1 year old.

Conclusion. The epidemiology of meningococcal diseases has been varied in time with or without any apparent reasons. Hajj is a well-known cause for serogroup W epidemics and serogroup W was the most common cause of meningitis in Turkey during 2009–2014 as in other Middle East countries. After the impact of serogroup W epidemics related to Hajj seen in 2010's was diminished, serogroup B has been leading cause of childhood meningitis since 2015. In countries affected from Hajj like Turkey, vaccination of children with serogroup B meningococcal vaccine as well as quadrivalentconjugated vaccine seems to be very important. It should be kept in mind that meningococcal epidemiology is dynamic and needed to be closely monitored to detect changes in years

Figure 1. Distribution of causative agents of bacterial meningitis in Turkey during 2005–2017.

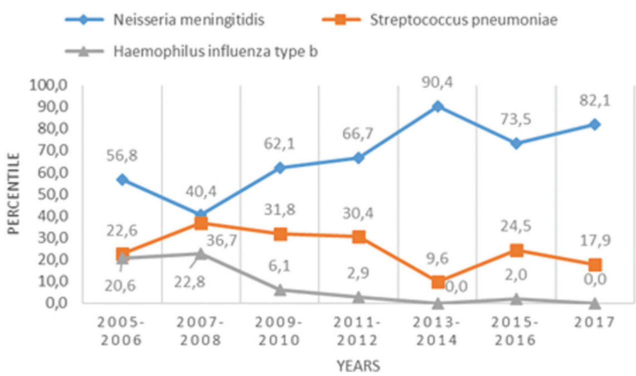
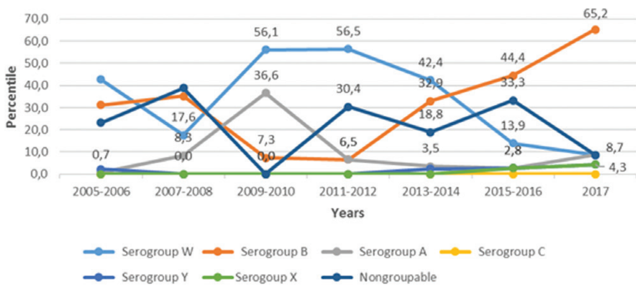


Figure 2. Distribution of meningococcal serogroups of meningococcal meningitis in Turkey during 2015–2017 and comparison with results belonging to previous years.



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683. Cost Calculator for Mass Vaccination Response to a US College Campus Outbreak of Serogroup B Meningococcal Disease

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Background. US college students are at increased risk for serogroup B meningococcal disease (MenB). MenB caused ~57% of meningococcal disease cases among 16- to 23-year-olds in 2016, and was responsible for 10 US college outbreaks from 2011–2017 involving 41 cases and an at-risk population of ~182,000 enrolled undergraduates. Outbreaks cause disruptive anxiety among university communities and implementing a mass vaccination response imposes an often unforeseen financial burden. This study aimed to enumerate costs incurred during a points-of-dispensing, mass vaccination response to a US campus MenB outbreak.

Methods. The 2015 MenB outbreak at Providence College was used as a case study to develop an Excel-based (Microsoft, Redmond, WA) cost calculator to capture costs and resources associated with a MenB outbreak response. The calculator has user-modifiable inputs related to the vaccine-eligible population, accounts for each vaccination event and vaccine dose (Figure 1), and estimates direct costs (2016 USD) during 18 months post-outbreak. Potential/expected costs computed (assuming 100% vaccine coverage) were compared with estimated actual costs incurred during the outbreak, using a micro-costing approach.

Results. The estimated total cost for full vaccination of 4,795 eligible individuals was $1,798,399 ($375.06/person); based on actual vaccinations received, the cost calculator computed $1,350,963 in aggregate direct costs ($636.05/person fully vaccinated) (Table 1). In both analyses, medical supplies were the majority of costs (88–89%), followed by labor resources (7–9%).

Conclusion. This cost calculator quantifies the direct cost of a mass vaccination response to one campus MenB outbreak. Although the cost estimates herein are higher